

AMENDMENTS IN THE CLAIMS:

1. (Currently Amended) An optical head device, comprising:
- a light source for emitting light;
 - a collection optical system for collecting the light emitted by the light source to an information memory medium including tracks having prescribed grooves;
 - a light detector having a plurality of detection areas for receiving the light reflected by the information memory medium and outputting a signal in accordance with a light amount of the light received;
 - a ~~tracking-error-signal-generator~~ differential operation circuit for receiving the signals output from the light detector and generating a ~~tracking-error~~ differential signal based on the signals; and
 - a light division element for dividing a reflected light reflected by the information memory medium;

wherein a relationship $\lambda / (NA \cdot Tp) \geq 1$ is satisfied where λ is the wavelength of the light emitted from the light source, NA is the numerical aperture of the collection optical system, and Tp is the distance from a center of the track in the information memory medium to a center of the adjacent track; and

the ~~tracking-error-signal-generator~~ differential operation circuit generates a ~~tracking-error~~ differential signal from an area except for an overlapping area of the reflected light, the overlapping area being an area of overlapping two circles each having a radius of 1 and having a center of one circle being apart from a center of the reflected light beam at a distance of $\lambda / (NA \cdot 2Tp)$ in a direction orthogonal to the track from a center of a cross-section of the reflected light, when the cross-section of the reflected light on the light division element in a circle having a radius of 1.

2. (Currently Amended) An optical head device according to claim 1, wherein the light division element includes at least two division lines which are substantially parallel to the tangent of the tracks, and the two of the division lines are arranged so as to sandwich the overlapping area of the reflected light therebetween,

and the ~~tracking error signal generator~~ differential operation circuit generates a ~~tracking error~~ differential signal by calculation of a signal obtained from the detection area which receives a reflected light emitting into an area outside of the two of the division lines.

3. (Original) An optical head device according to claim 1, wherein the light division element is a hologram element.

4. (Currently Amended) An optical head device, comprising:
a light source for emitting light;
a collection optical system for collecting the light emitted by the light source to an information memory medium including tracks having prescribed grooves;

a light detector having a plurality of detection areas for receiving the light reflected by the information memory medium and outputting a signal in accordance with a light amount of the light received;

a ~~tracking error signal generator~~ differential operation circuit for receiving the signals output from the light detector and generating a ~~tracking error~~ differential signal based on the signals: and

a light division element for dividing a reflected light reflected by the information memory medium;

wherein a relationship $\lambda / (NA \cdot T_p) \geq 1$ is satisfied where λ is the wavelength of the light emitted from the light source, NA is the numerical aperture of the collection optical system, and T_p is the distance from a center of the track in the information memory medium to a center of the adjacent track; and

the ~~tracking error signal generator~~ differential operation circuit generates a ~~tracking error~~ differential signal from an area except for an overlapping area of the reflected light, and a correcting signal for the ~~tracking~~ differential signal from an area including the overlapping area, the overlapping area being an area of overlapping two circles each having a radius of 1 and having a center of one circle being apart from a center of the reflected light beam at a distance of $\lambda / (NA \cdot 2T_p)$ in a direction orthogonal to the track from a center of a cross-section of the reflected light, when the

cross-section of the reflected light on the light division element in a circle having a radius of 1.

5. (Currently Amended) An optical head device according to claim 4, wherein the light division element includes division lines in the number of N which are substantially parallel to the tangent of the tracks, wherein N is an odd integer of 3 or more, the two of the division lines are arranged so as to sandwich the overlapping area of the reflected light therebetween, and the remaining division lines of (N-2) except for the two of the division lines are arranged between the two of the division lines, and wherein the ~~tracking error signal generator~~ differential operation circuit is positioned outside from the two of the division lines to generate a ~~tracking error~~ differential signal by using a signal obtained from the detection area which receives the reflected light admitting into a first area and a second area excluding the overlapping area, and generates a correction signal for adding a signal obtained from the detection area to calculate by adding a reducing the correction signal from the ~~tracking error~~ differential signal upon reversing alternatively the polarity of the signal obtained from the detection area which received the reflected light admitting to areas of odd number sandwiched by the two of the division lines.

6. (Original) An optical head device according to claim 4, wherein the division line is a hologram element.

7. (Original) An optical head device according to claim 4, wherein the light division element is a division line of the light detector.

8. (Currently Amended) An optical head device, comprising:
a light source for emitting light;
a collection optical system for collecting the light emitted by the light source to an information memory medium including tracks having prescribed grooves;

a light detector having a plurality of detection areas for receiving the light reflected by the information memory medium and outputting a signal in accordance with a light amount of the light received; and

a ~~tracking error signal generator~~ differential operation circuit for receiving the signals output from the light detector and generating a ~~tracking error~~ differential signal based on the signals;

wherein a relationship $\lambda / (NA \cdot T_p) \geq 1$ is satisfied where λ is the wavelength of the light emitted from the light source, NA is the numerical aperture of the collection optical system, and T_p is the distance from a center of the track in the information memory medium to a center of the adjacent track; and

a light reduction means is provided on a light path for reducing the light transmittance of the overlapping area and the vicinity thereof, the overlapping area being an area of overlapping two circles each having a radius of 1 and having a center of one circle being apart from a center of the reflected light beam at a distance of $\lambda / (NA \cdot 2T_p)$ in a direction orthogonal to the track from a center of a cross-section of the reflected light, when the cross-section of the reflected light on the light division element in a circle having a radius of 1.

9. (Original) An optical head device according to claim 8, wherein the light reduction means of light is integrally formed with the collection optical system.

10. (Original) An optical head device according to claim 8, wherein the light reduction means of light is a hologram element.